

Ebonite showed a slight change of the opposite sign at the furthest end, probably due to prolonged inductive action.—New occurrences of corundum in North Carolina, by J. H. Pratt. The new occurrences are in an amphibole schist and a quartz schist respectively.—Products of the explosion of acetylene, and of mixtures of acetylene and nitrogen, by W. G. Mixer. Acetylene and ammonia yield hydrocyanic acid at a much lower temperature than is required to cause nitrogen to combine. It may be that ammonia is the first compound of nitrogen formed in the bomb, but the fact that a little ammonia is found among the products is not conclusive, as that may have resulted from the decomposition of hydrocyanic acid.

Annalen der Physik, No. 9.—Electric conductivity of pressed powders, by F. Streintz. Fine powders of platinum black, lamp-black and graphite were prepared and subjected to great pressure. The resistance of 1 cubic mm. of platinum black was found to be 0.92 ohms at zero, as against 0.14 for ordinary platinum. The increase of resistance on heating was only half that of platinum. Lampblack showed a corresponding resistance of 40,000 ohms, and a very high negative temperature coefficient, therein resembling the electrolytes; while graphite, with its positive temperature coefficient, ranges itself among the metals.—Resistivity of bismuth in a variable magnetic field, by H. Eichhorn. Bismuth does not instantaneously lose the high resistance it acquires in a strong magnetic field. This is proved by mounting a bismuth coil on a rotating disc so that it traverses a magnetic field once during each revolution, and measuring, by means of contact pieces, the instantaneous resistance at various points of the orbit when at rest and in motion respectively.—Ratio of the thermal and electric conductivities, by E. Grüneisen. A very small proportion of arsenic added to copper suffices to reduce the thermal conductivity to one-tenth, and the electric conductivity to one-twelfth of its original value. In iron, the electric conductivity is much more sensitive to impurities than the thermal conductivity.—Reflection of kathode rays, by H. Starke. Kathode rays were made to impinge upon a metallic plate enclosed in a cylinder of the same metal, through a small opening in the end of which the rays entered. Another inner cylinder was used to measure the rays reflected by the plate and diffused by the gas, on the principle of Faraday's ice-pail. By putting the plate into two different positions, the diffusion and reflection could be separately estimated. The reflective power of aluminium was found to be 28.2, and that of copper 45.5.—Mechanical effect of kathode rays, by H. Starke. The author employs a kathode shaped like a propeller, but fixed. The rays impinge at an angle of 45° upon a thin plate of aluminium suspended above the kathode by means of a thin platinum wire. The results are negative so far.—Hardness of metals, by F. Auerbach. The author determines the hardness of metals by his method of finding the greatest pressure between a plate and a lens which the substance will stand without permanent deformation. Mild steel was found to have a hardness of 361, or that of quartz, hard copper 143 (like apatite), brass 107 (like fluor spar), gold 97, silver 91, aluminium 52, and lead 10.—Thermal conductivity of gases, by P. A. Eckerlein. The conductivities of air, hydrogen and carbonic acid are as 1 : 6.8 : 0.73, and the temperature coefficients are 0.00362, 0.00422 and 0.00352 respectively.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, October 3.—Mr. G. H. Verrall, president, in the chair.—Mr. G. C. Champion exhibited specimens of *Trogophloeus anglicanus*, Sharp, from Plymouth; *Pachytia sexmaculata*, L., from Nethy Bridge, and *Anchomenus quadripunctatus*, De Geer, from Woking. Mr. M. Jacoby exhibited an ichneumon from Blandford parasitic on *Sirex*—*Rhyssa persuasoria*, and Col. Yerbury said that he had met with the same species in some numbers in Scotland. One female observed in the act of oviposition had thrust her ovipositor, which is about the consistency of a human hair, through an inch of fir trunk. Col. Yerbury exhibited:—(1) a rare sawfly, *Xyphidria camelus*, taken in Scotland this year at Nethy Bridge. The species is mentioned in the old books as extinct in the United Kingdom, and there are no modern specimens in the South Kensington Museum collection. (2) Rare diptera from Scotland including (a) *Laphria flava*, from Nethy Bridge; (b) *Climacomyia sphaeroides*, new to the fauna of Great Britain,

from the Mound Sutherland, where it was common on Umbelliferae under fir trees, one female also being taken on the path up Cairngorm near Glenmore Lodge; (c) *Microdon devius*; and (d) *Chilosia chrysocoma* at mountain-ash blossom, Nethy Bridge; (e) *Stomphastica flava*, two males from Golspie, September, 1900.—Mr. H. K. Donisthorpe exhibited (1) a specimen of *Drusilla canaliculata*, with the dead body of a *Myrmica* in its mouth, captured at Chiddingfold on July 17; (2) Specimens of *Myrmedonia collaris* and its larva taken in Wicken Fen with *M. loevinodis* in August, 1900.—The Rev. F. D. Morice exhibited a remarkable hermaphrodite of the bee *Podalirius* (= *Anthophora*) *retusus*, in which the male characters were confined to the left side of the head and genitalia, the right side of the thorax and the abdominal segments. The antennae and hind (polliniferous) legs were those of a female, and the genitalia half of each sex.—Dr. Chapman exhibited beetles of the genus *Orina*, some of them alive, and remarked on the fact that while some were viviparous others were oviparous, in the case of the former the larvae being developed in the ovaries.—Mr. H. J. Elwes exhibited a collection of lepidoptera from Greece, taken this season in conjunction with Miss Fountaine in the Morea, and in the Parnassus region, including *Colias heldreichi*, *G. rhamni*, var. *farinosa*, and *Lycæna ottomanus*, with a var. of *L. semiargus*, probably a distinct species.—Mr. H. H. May exhibited a variety of *Strenia clathrata* not unlike *Syrichthys alveolus* on the wing.—Mr. F. Enock exhibited a male bee *Stelis aterrima*, one of the bees parasitic in the nests of *Osmia fulviventris*, usually considered a rare insect.—Papers were communicated on "Descriptions of new species and a new genus of South American Eumolpidae with remarks on some of the genera," by Mr. M. Jacoby, and on "Lepidoptera Heterocera from Northern China, Japan and Corea" (Part iv.), by Mr. J. H. Leech, &c.

PARIS.

Academy of Sciences, October 15.—M. Maurice Lévy in the chair.—Preparation and properties of the carbides of neodymium and praseodymium, by M. Henri Moissan. The oxides of neo- and praseodymium heated with carbon in the electric furnace give crystallised carbides of the formula RC_2 , like the carbides of cerium and lanthanum. These carbides are decomposed by cold water, giving a mixture of acetylene, ethylene and paraffins, the first-named predominating. At 1200° the carbides are superficially attacked by ammonia, some nitride being formed.—Observations of the planet Eros made with the large equatorial of the Observatory of Bordeaux, by MM. G. Rayet and A. Féraud. The planet is of about the ninth magnitude, and leaves a clear trace upon the photographic plate.—On the general equation which gives the integral of Jacobi as a particular case, by M. Gruey.—Observations of the Borrelly-Brooks Comet, made with the Brunner equatorial at the Observatory of Lyons, by M. J. Guillaume.—The problem of stationary temperatures, by M. W. Stekloff.—On the explosive mixtures formed by air and by hydrocarbon vapours of the principal organic series, by M. J. Meunier.—On the elimination of the harmonics from alternating currents by the use of condensers, and on the interest of this elimination from the point of view of security of human life, by M. Georges Claude.—On the accessory reactions of electrolysis, by M. A. Brochet. In the electrolysis of sodium hypochlorite, the loss of hypochlorite in four hours is much greater than that calculated from the current used; and in the preparation of chlorate yields greater than those calculated are obtained. The author traces these anomalous results to the fact that the immediate neighbourhood of the anode is always acid, and hence the hypochlorous acid in that region is transformed spontaneously into chlorate without using electrical energy, even when the bulk of the liquid is alkaline.—On isopyrotaric acid, a new pyrogenous product from tartaric acid, by M. L. J. Simon. The ferric salt of this acid, the isolation of which was described in an earlier note, is highly characteristic, possessing a deep violet colour in solution. Pyrotaric acid and similarly constituted furfuranic acids do not give this reaction, which is so sensitive that it may be used for the detection of ferric salts and also as an indicator in acidimetry.—On the morphology of the respiratory apparatus of the larva of *Bruchus ornatus*, by M. L. G. Seurat. The larva of *Bruchus ornatus* presents some peculiarities in the morphology of its respiratory apparatus which clearly distinguishes it from the Curculionidae, the most important being the rounded form of the stigmata, the existence of a prothoracic ring completely uniting the lateral trunks, and of ten transversal latero-ventral anasto-

moses, of which three are thoracic.—The proteolytic ferment of seeds during germination, by M. V. Harlay. The proteolytic ferment in lentils during germination is analogous in its behaviour to the animal ferment trypsin.—On early tuberculation in plants, by M. Noel Bernard.—On the Cretacian of the *massif* of Abou-Roach (Egypt), by M. R. Fourtau.—Fixation by porous bodies of clay in suspension in water, by M. J. Thoulet.

NEW SOUTH WALES.

Linnean Society, June 27.—The President, the Hon. James Norton, in the chair.—Notes on some Australian and New Zealand parasitic Hymenoptera, with descriptions of new genera and species, by William H. Ashmead. Sixty-four species were represented in two collections brought together by Mr. W. W. Froggatt and Mr. A. Koebele, formerly of the U.S. Department of Agriculture. Of these forty-nine are described as new.—On the *Carenides* (Fam. *Carabidae*), Part iii., by Thomas G. Sloane. Nine species referable to the genera *Laccoperum*, *Carenum*, *Eutoma* and *Carenidium* are described as new, from Queensland, North-west, West and Central Australia. A synoptic table of the groups of species into which the genus *Carenum* may be subdivided is given, with notes thereon.—Descriptions of two new species of Diptera from Western Australia, by D. W. Coquillett. A species of *Phytomyza*, the larvæ of which mine the leaves of the beet, and one of *Myiophasia*, parasitic upon the Scarabeid *Anoplostethus opalinus*, Burm., are described. The second of these, founded upon male specimens, may indeed be congeneric with *Neophasia picta*, Brauer and Bergenst., founded on a female specimen without antennæ from West Australia.—Descriptions of two new blind weevils from Western Australia and Tasmania, by Arthur M. Lea. Only two species of blind Coleoptera have hitherto been recorded from Australia, namely, *Halorhynchus caecus*, Woll., from West Australia, and *Illaphanus stephensi*, MacL., from New South Wales, both dwelling close to sea-beaches. An additional species of *Halorhynchus* from the "outer beach" at Geraldton, Western Australia, is described in the present paper, together with an insect for which a new genus is proposed, and of which the type-specimen was found in the nest of a small red ant near Hobart.—The double staining of spores and bacilli, by R. Greig Smith. An improvement upon Klein's method of double staining spores and bacilli is described. The spore-bearing material is distributed in normal saline in a small test-tube, an equal volume of carbol-fuchsin is added and the mixture placed in boiling water for fifteen minutes. A loopful is then withdrawn, spread over a coverglass, dried and fixed in a flame. The bacilli are decolorised in 1½ per cent. (by volume) of alcoholic hydrochloric acid, washed in water and counterstained in methylene blue. Even the most refractory spores are stained deep red, the bacilli blue.

July 25.—The President, the Hon. James Norton, in the chair.—Descriptions of new Australian Lepidoptera, by Oswald B. Lower. Forty species, referable to the *Bombycina*, *Geometrina*, *Pyralidina*, *Tortricina*, *Tinea* (*Ecophoridae*, *Gelechiidae*, *Elachistidae*, *Tineidae*), are treated of, thirty seven being described as new.—On *Didymorchis*, a Rhabdocolle Turbellarian inhabiting the branchial cavities of New Zealand crayfishes, by Prof. William A. Haswell, F.R.S. *Didymorchis* attracted notice during a search for allies of the *Temnocephaleae*, and is probably the nearest known relative of the group in question. The animal is about 1 mm. long and less than ½ mm. in greatest breadth; and as far as observed is practically an invariable companion of the crayfish *Paraneopros setosus*, though not occurring in large numbers. A remarkable feature is that cilia are developed only on a portion of the ventral surface of the body, and are entirely absent round the margin and on the dorsal surface. On the whole the animal seems to make a nearer approach to the *Vorticida* than to any of the other known groups.—Supplement to a monograph of the *Temnocephaleae*, by Prof. William A. Haswell, F.R.S. Three additional species of *Temnocephala* are described—*T. tasmanica*, allied to the much larger *T. quadricornis*, occurring in the branchial cavities, and occasionally on the external surface of *Astacopsis tasmanicus*; *T. aurantiaca*, found upon the lower surface of the abdomen of a Tasmanian *Astacopsis*, at present undetermined; and *T. coeca*, found upon the surface of the remarkable burrowing Isopod, *Phreatoicopsis terricola*, Spencer and Hall. The paper concludes with some remarks on certain points in the structure of the members of the family, mainly suggested by Monticelli's recent paper (*Bolletino della Soc. di Nat. in Napoli*, xii. 1898).—Observations on the Tertiary flora of Australia, with special

reference to Ettingshausen's theory of the Tertiary cosmopolitan flora, Part i., by Henry Deane.—On the bacterial flora of the Sydney water supply, Part i., by R. Greig Smith. Thirty-two species of micro-organisms commonly occurring in Sydney water are described. These include six new species and four new subspecies.

DIARY OF SOCIETIES.

FRIDAY, OCTOBER 26.

PHYSICAL SOCIETY, at 5.—Exhibition of Experiments illustrating certain Phenomena of Vision: Dr. Shelford Bidwell, F.R.S.—On the Concentration at the Electrode in a Solution, with special reference to the Liberation of Hydrogen by the Electrolysis of a Mixture of Copper Sulphate and Sulphuric Acid: Dr. J. S. Sand.—Electromotive Force and Osmotic Pressure; Dr. R. A. Lehfeldt.

SATURDAY, OCTOBER 27.

ESSEX FIELD CLUB, at 6.30.—Contributions to the Pleistocene Geology of the Thames Valley. The Grays Thurrock Area, Part I.: Martin A. C. Hinton and A. S. Kennard.

THURSDAY, NOVEMBER 1.

CHEMICAL SOCIETY, at 8.—Dehydrohomocamphoric Acid and its Oxidation Products: Arthur Lapworth.—Derivatives of Ethyl α -methyl-8-phenylcyanoglutarate: W. Carter and W. Trevor Lawrence.—The Nitration of Acetamino-*o*-phenylacetate (diacetyl-*o*-aminophenol)—a Correction: R. Meldola, F.R.S., and Elkan Wechsler.—Rhamnazin and Rhamnetin: A. G. Perkin and J. R. Allison.—(1) Luteolin, Part III.; (2) Genistein, Part II.: A. G. Perkin and L. H. Horsfall.—Colouring Matter of the Flowers of *Delphinium consolida*: A. G. Perkin and E. J. Wilkinson.—The Action of Alkalies on the Nitro-compounds of the Paraffin Series, Part II.: Wyndham R. Dunstan, F.R.S., and Ernest Goulding.—Hexachlorides of Benzonitrile, Benzamide and Benzoic Acid: F. E. Matthews.—The Influence of Solvents on the Rotation of Optically-active Compounds, Part I.: T. S. Patterson.—Note on Gallinek's Amidomethyl-naphthimidazole: R. Meldola, F.R.S., and F. H. Streatfield.—The Action of Heat on Ethyl-Sulphuric Acid: W. Ramsay and G. Rudolf.—The Amount of Chlorine in Rain-water collected at Cirencester: Edward Kinch.

RÖNTGEN SOCIETY, at 8.—Presidential Address: Dr. J. B. Macintyre.

CONTENTS.

PAGE

The English Gault and Upper Greensand. By Prof. T. G. Bonney, F.R.S.	617
The Principles of Patent Law	618
Historical Chemistry. By A. S.	618
Our Bookshelf:—	
Bütschli: "Untersuchungen über Mikrostrukturen des erstarrten Schwefels nebst Bemerkungen über Sublimation, Überschmelzung und Übersättigung des Schwefels und einiger anderer Körper"; "Untersuchungen über die Mikrostruktur künstlicher und natürlicher Kieselauergallerten (Tabaschir, Hydrophan, Opal)"	619
Cowham: "The School Journey. A Means of Teaching Geography, Physiology and Elementary Science"	619
Richards and Woodman: "Air, Water and Food."—J. B. C.	620
Gregory and Simmons: "Elementary Physics and Chemistry."—C. P. B.	620
Treille: "Principes d'Hygiène Coloniale."—C. B. S.	620
Letters to the Editor:—	
Genesis of the Vertebrate Column.—Herbert Spencer	620
Albinism and Natural Selection.—Walter Garstang	620
Tenacity of Life of the Albatross.—Prof. John Perry, F.R.S.; Captain Wm. J. Reed	621
The Peopling of Australia.—Sidney H. Ray	621
Recent and Proposed Geodetic Measurements. (With Map.)	622
Recent Antarctic Books. (Illustrated.) By Dr. Hugh Robert Mill	624
Notes	626
Our Astronomical Column:—	
Ephemeris for Observations of Eros	630
Opposition of Eros	630
New Double Stars	630
Astronomical Work at Daramona Observatory	630
Historical Aspects of the Discovery of the Circulation of the Blood. By Prof. T. Clifford Allbutt, F.R.S.	630
The Annual Congress of the German Anthropological Society	632
Anthropology at the British Association	633
University and Educational Intelligence	638
Scientific Serials	638
Societies and Academies	639
Diary of Societies	640